919 Allergic Reactions to Diphtheria, Tetanus, and Acellular Pertussis Vaccines Among Children with Milk Allergy

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RATIONALE: Vaccines containing diphtheria, tetanus, and acellular pertussis are processed in medium containing casamino acids derived from cow's milk; several milk allergic children have reported allergic reactions following administration of these vaccines.

METHODS: This was a chart review of patients seen in our practice who had reported allergic reactions after receiving tetanus vaccines (primary or booster doses) from September 2007 to March 2010. An inhibition-ELISA was performed to determine the presence of milk protein in the vaccines.

RESULTS: We identified seven patients (5 male, 2 female; median age 11 years; range: 5-17), who reported convincing allergic reactions to tetanus vaccines. Six patients had prior allergic reactions to cow's milk, including severe reactions (5) and or reactions to trace exposures (4); one was diagnosed with milk allergy based on serologic testing. All patients had elevated milk specific IgE levels documented within 2 years of their reactions to the vaccine: 59, 96, and 5 patients >100 kU_A/L. Each reported symptoms consistent with a diagnosis of anaphylaxis promptly after receiving the vaccine. Symptoms included: wheezing (5/7), urticaria (5/7), sneezing/nasal congestion (3/7), angioedema (3/7), and repetitive cough (2/7). Treatments included antihistamines (5/7), epinephrine (3/7), inhaled beta-agonists (3/7), and corticosteroids (2/7). Assays were performed on 2 different lots of the tetanus, diphtheria, and acellular pertussis vaccine, confirming the presence of milk protein in one lot (30 ng/mL).

CONCLUSIONS: Vaccines containing tetanus, diphtheria, and acellular pertussis derived from broths containing casamino acids may present a risk to persons with severe milk allergy.

920 Cross Cultural Comparisons of Irish and Australian Children and Teens Living with Food Allergy: The SchoolNuts Study

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RATIONALE: We have previously demonstrated an integrated conceptual model explaining the onset, development and maintenance of food allergy related cognitions, emotions and behaviour in children aged 5-16 years, with particular attention paid to transition points.

AIM: To evaluate and cross-culturally validate our model, developed in an Irish population, in an Australian sample of children and teens with food allergy.

METHOD: Focus groups and interviews were held in Australia as part of the School Nuts study. Data was systematically analysed, and compared to Irish findings, using open, axial and selective coding and grounded theory.

RESULTS: The data consisted of 28 Australian and 62 Irish children and teens with confirmed food allergy (mean age 10 years). Six key codes emerged from the Australian analysis: Meanings of food; Autonomy, Control and Self-efficacy; Peer Relationships; Risk and Safety; Self/Identity. These themes were strikingly similar to our previous research including the impact of living with uncertainty, with difference, with rules and the coping strategies used. There were some cultural differences in the degree and the manner in which these were experienced. For example, Australian children had a lower awareness of symptoms of anaphylaxis compared to Irish children.

CONCLUSIONS: Findings confirmed the cross-cultural validity of our disease specific developmental model which may help in the identification, assessment and initial management of food allergy specific emotional and behavioural problems.

921 Tannic Acid as a Means to Remove Peanut Allergens

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RATIONALE: Tannic acid (TA) is a polyphenol that has been used as a treatment for toxic substances and carpet allergens. The objective was to determine the efficacy of TA on the removal of peanut allergens from peanut butter slurry and supernatant.

METHODS: TAs at various amounts were added to peanut butter slurry and supernatant (1 mL, 20 mg/mL), stirred, and centrifuged. The release of proteins from the retrieved pellets was carried out by re-suspending the pellets in a buffer, pH 2, followed by a buffer of pH 8 (simulating gastric and intestinal pH). The degree of protein release was evaluated by SDS-PAGE and blots on the supernatants at pH 2 and 8.

RESULTS: Data showed that peanut proteins/allergens were completely removed (as pellets) from the slurry and supernatant with TA at > 10 mg. No proteins were released from the pellets even after the latter were re-suspended sequentially in buffers, pH 2 and pH 8. By contrast, pellets obtained from TA at < 10 mg were found to release peanut proteins at a rate inversely related to the amount of TA added.

CONCLUSIONS: TA bound and formed pellets with peanut proteins/allergens. The degree of peanut proteins/allergens binding to TA depended on the amount of TA added. The more TA was added, the harder the peanut proteins/allergens were released from the pellets at simulated gastric and intestinal pH. The finding indicates that TA may be useful for removal of peanut allergens due to accidental ingestion of peanut products and/or preparation of low-allergen peanut products.

922 Parental Opinions About Food Allergen Labeling of Pharmaceutical Products

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RATIONALE: Despite clear labeling guidelines for packaged foods in the United States, the role of food allergens in pharmaceutical products has been insufficiently studied.

METHODS: A 30-item online survey was administered to parent members and website visitors of the Food Allergy & Anaphylaxis Network.

RESULTS: 1948 respondents completed the survey. 85% expressed concern about potential food allergens in their child's medications and 89.9% agreed a child could react to these ingredients. Only 14.6% were aware that no requirement existed for labeling food allergen content in medications, and only 59.9% reported their allergist considers food allergens prior to prescribing medications. 11.5% suspected their child reacted to a food allergen used in a medication. Parents expressed very poor knowledge of the limited danger from the use of egg ovalbumin, peanut oil, corn starch/syrup, soy lecithin, and red dye as medication or vaccine ingredients. Significantly fewer reactions were reported among respondents reporting their pharmacist asks about food allergies when dispensing medication ($p=0.008$).

CONCLUSIONS: Current legislation does not require food allergen labeling of pharmaceutical products, and respondents were largely unaware of this. The reported number of reactions was low, but not absent. Pharmacist awareness was associated with fewer reported events. Despite a high level of concern, the median answer for many items was 'I don't know,' suggesting a knowledge deficit, echoed by strong but flawed beliefs about the dangers of certain food product use in medications. Both continued education about food allergen labeling, as well as further study of food allergen labeling of pharmaceutical items, are needed.